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ABSTRACT

This analytical report reviews higher education in Yemen, specifically at Yemen's national university, the University of Sana'a. It finds that university enrollment has been increasing very rapidly from 17,000 students in 1987 to a projected enrollment of 79,000 students by 2000. This explosive growth has resulted in overcrowded classrooms, insufficient staff resources, deteriorating physical plant and equipment, inadequate educational materials and equipment, and a low level of absorption of graduates into the labor force. The report urges the government to develop policies which consider the country's medium- and long-term needs and result in strategies that will make higher education a more effective investment to serve the needs of the country and protect its resources. Following an introduction, which reviews the university's founding in 1970, the next three sections describe the university, detail the university's structure and organization, and review its development. The next section identifies issues related to low internal efficiency and quality and to external efficiency, as measured by employment surpluses and shortages. A brief section on policy and institutional measures is followed by a section suggesting goals and strategies in the areas of performance and quality, efficiency, equity, and resources. Annexes and appendices provide data tables and additional detail. (Contains 16 references.) (DB)

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Policy, Research, and External Affairs

WORKING PAPERS

Education and Employment

Population and Human Resources
Department
The World Bank
May 1991
WPS 676

Higher Education in the Republic of Yemen

The University of Sana'a

Viswanathan Selvaratnam
and
Omporn L. Regel

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Higher education in Yemen has reached a critical stage requiring urgent reexamination of the course of its development. Future policies should help to diversify the structure of higher education and to provide opportunities for admission to a broader group of students.

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Policy, Research, and External Affairs

WORKING PAPERS

Education and Employment

WPS 676

This paper — a product of the Education and Employment Division, Population and Human Resources Department — is part of a larger effort in PRE to strengthen the ability of the Bank and borrowers to address the challenges in higher education. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Cynthia Cristobal, room S6-035, extension 33640 (48 pages, with graphs and tables).

Enrollment in the University of Sana'a grew gradually from fewer than 100 students in 1970, shortly after it opened, to about 4,500 in 1979. Government policy at first tried to balance the university enrollment with the capacity of the marketplace to absorb university graduates.

University enrollment began to increase at an outstanding rate after 1985, following the heavy expansion of secondary education in the country in the late 1970s. From 1987 to 1991, total enrollment expanded from about 17,000 to 44,000 students. If the present rate of intake continues, total enrollment is projected to reach 79,000 students by the year 2000.

This explosive growth has created numerous problems, including overcrowded classrooms, insufficient staff resources, deteriorating physical plant and equipment, inadequate educational materials and equipment, and a low level of absorption of graduates into the labor force.

These developments threaten the quality of degree programs in several disciplines. The government should act immediately to develop a strategy to protect its investment in higher education. The policy should consider the country's medium- and long-term needs, the constraints on its resources, and the growing social aspirations of its people. The goal of this assessment should be to design a strategy that will make higher education a more effective investment to serve the needs of the country and to protect its resources.

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List of Acronyms

CPO	Central Planning Office
FOE	Faculty of Education
MOCSAR	Ministry of Civil Service and Administrative Reform
MOE	Ministry of Education
PDRY	People's Democratic Republic of Yemen
ROY	Republic of Yemen
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development
YAR	Yemen Arab Republic
YR1	Yemen Rials

Higher Education in The Republic of Yemen: The University of Sana'a [1]

Critical Issues and Policy Options

I. Introduction

1. This study aims at assessing the development and performance of higher education in the former Yemen Arab Republic. It traces the background of the University of Sana'a and its objectives and policies, resource base, staff development, curricula, organizational structure, physical facilities and job placement. The study highlights the critical policy and institutional factors that constrain the overall efficient performance and inhibit the future development of the University. It also addresses measures that might alleviate some of these constraints.

Background

2. Yemen is a low-middle income country with an average per capita income of $590 in 1987 and is dependent largely on agriculture and migrant earnings from petroleum-rich neighboring Arab countries.[2] It came into being following the September 1962 Revolution which ended the feudal role and the isolationist policy of the Hamid al-Din Dynasty (1890-1962). Except for a few exclusively male and urban elementary and secondary schools providing an Islamic education with some modern refinements, education in the modern sense was practically non-existent.[3] Thus, few Yemenis had educational qualifications. Therefore, the country had an acute shortage of the middle and high-level manpower to lay the foundations of a modern state and accelerate economic growth. In particular, to develop its modest oil and gas

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[1] This study was undertaken before the unification of the Yemen Arab Republic (YAR or the North) and the People's Democratic Republic of Yemen (PDRY of the South) on May 22, 1990 to form the Republic of Yemen (ROY). The two governmental administration have thus far joined forces at the cabinet level and are now in the process of aligning forces at the lower ministerial levels. 1991 will continue to be a transition period during which some separate institutions, policies and practices will coexist at the subsectoral level. The Government proposes to introduce the first budget for the newly formed Republic of Yemen in 1991 and development plan in 1992. This study is focussed on the University of Sana'a, the sole university in the Yemen Arab Republic before the unification.

[2] Migrant to petroleum-rich neighboring Arab countries has become a dominant factor in the culture, social and economic life of the country.

[3] Peter Clark. 1985. Aspects of Education in Yemen Arab Republic in B.R. Pridham (ed.) Economy, Society and Culture in Contemporary Yemen, London: Croom Helm P.172.

resources, good tourism potential and a dynamic market systems as well as to promote its socially-significant sectors like health, education and training, the country needed physicians, dentists, pharmacists, medical assistants, engineers, economists, teachers, technicians, medical assistants, extension workers, etc. However, a protracted Civil War (1962-68) and the lack of a requisite pool of secondary school graduates, frustrated attempts to establish a modern tertiary institution to train high-level manpower needed for Yemen's development strategy.

(a) Overseas Study

3. Yemen's immediate response to overcome its enormous gap between its available middle and high-level manpower and its immediate and growing need was to send qualified young Yemenis abroad, for degree and related programs in diverse fields. The organizations responsible for overseas study were (i) the Ministry of Education (MOE), (ii) the Central Planning Office (CPO) and (iii) from 1970, the University of Sana'a fellowship program for staff development. Though until recently, much of overseas higher education was financed through donor assistance, still the cost to Yemen continues to be considerable.

4. Prior to 1962, the only option for aspiring Yemeni students with appropriate qualifications was to travel to neighboring Arab and other countries for study in universities and higher institutions. Most went to Egypt, the Soviet Union, Eastern Europe and China. In 1960/61 around 1,030 Yemeni students were attending postsecondary institutions in about twelve countries. Most of them were in medicine, engineering, agriculture and science. Others were in programs for higher degrees (Masters or Ph.D) or postgraduate diplomas in specialized fields. These students were either privately financed or supported by the host countries.

5. Overseas study both at the undergraduate and postgraduate level still plays an important role in Yemen's high-level manpower training. Until 1987, the Yemen government sponsored at the undergraduate level only courses that were relevant to national development and not available at the University of Sana'a. Since 1987, due to severe financial constraints, the government has suspended sponsorship of undergraduate study overseas. Currently, all overseas undergraduate study is sponsored either by host countries or donor agencies, while the University of Sana'a has about 50% of its Yemini academic staff abroad on higher degree courses.

(b) Rationale for a University

6. The main arguments advanced by the Government in favor of establishing a national university were to:

(a) accelerate the process of Yemenization, replace expatriates and conserve foreign exchange;
(b) provide higher education opportunities to qualified female students, since overseas study presented a cultural barrier to them;
(c) redress a decline of the knowledge in the Sharia (Islamic Law) -- a concern voiced by the articulate religious leadership;

(d) respond to the demand from the educated public for a national university system.

II. Higher Education: The University

7. In November 1970, the Government established the University of Sana'a by "upgrading" a teacher training institute. It was initially modelled on the Ain Shams University in Cairo. This publicly financed University was under the authority of the MOE, with Arabic as the main medium of instruction and English as a language of instruction in science, engineering and medicine.

8. According to the current "Law No.89 for the year 1977" the main goals of the University [4] are:

(a) to develop and provide a higher education system which will be responsive to the needs of the nation and its citizens;
(b) to conduct and encourage scientific research that will serve the comprehensive development, and create scientific and cultural links with other Arab and foreign universities and scientific institutions; and
(c) to preserve, transmit and enhance the accomplishment of national goals with special attention to Arabic-Islamic values and traditions.

9. Other specialized institutions but not necessarily high level include the National Institute for Public Administration, the Telecommunications Institute, the Health Manpower Training Institute, the Police College, Center for Educational Research and Yemeni Research Center.

10. Since its establishment, the University has expanded its facilities significantly. It now has two campuses in Sana'a and four satellite Faculties of education in Hodeida, Taiz, Ibb and Hajjah. The original Sana'a campus -- the 'physical nucleus' of the University -- is located near the center of the city of Sana'a and houses the Faculties of Arts, Science, the Language Center and the Rector's Office with separate Arts and Science libraries and other support facilities. The new 217 hectare campus, established in the early 1980s is approximately three kilometers northwest of the center of the city and houses the main administration, the Faculties of Agriculture, Commerce, Education, Engineering, Law and Sharia, Medicine and Health, and Sciences (except the satellite Faculties of Education), the Central Library, lecture theatres, sports facilities and staff and student housing. Public transport is available between the two campuses.

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[4] Sana'a University Phase I: The Master Plan and Mahamed Mohamed Al-Moltahar 1986. Evaluating the Consequences of an Academic Innovation: The Case of the Calendar Curriculum Change at Sana'a University in the Yemen Arab Republic. Ph.D. (Education dissertation). The University of Michigan, p.4.

III. Structure and Organization

(a) Governance

11. In 1974 the Government established an autonomous Governing Council presided over by the Minister of Education to control and administer the University. Although the University enjoys considerable autonomy in its actual delivery of academic teaching and research, staff appointments and administrative management, its overall policy, planning and finance is under the Government's direction. The University is administered by a Rector, nominated by the Chairman of the Governing Council of the University and appointed by Presidential decree. In 1988, the organizational structure of the University was reconstituted (see Annex II) to have a (i) Higher Council of the University; (ii) The University Council; (iii) The Rector of the University; (iv) Faculty Council and (v) Department Council. This organizational structure is highly hierarchical and centralized, with clearly delineated responsibilities at each level.

12. (i) The Higher Council establishes and implements policy for the University, ensuring its consistency within the overall framework of the government's higher education policy and oversees its implementation. It also attempts to link graduate and research outputs with the manpower and development needs of the country and approves the annual recurrent and capital budgets. The Higher Council is now headed by the Deputy Prime Minister, who represents the University in the Cabinet. Other members of the Council include: (a) Minister of Education; (b) Minister of Public Service; (c) Minister of Justice; (d) Minister of Finance; (e) Minister of Labor and Social Services, and (f) Assistant Minister of Planning in the CPO.

13. Through the Chairmanship of the Deputy Prime Minister and membership of the various Ministers in the Higher Council, the Government maintains close control over the University. In particular, the Council through its dominant role in policy formulation, planning and finance determines the direction of the development of the University.

14. (ii) The University Council is composed of senior academics and administrators and comes under the direction of the Higher Council. It prepares the rules, regulations and statutes for implementation in areas such as curricula, examinations, the University's annual recurrent and capital budget, student admission criteria, research projects and university exchange. It acts as the main link between the University's policy and planning decisions by the Higher Council and its implementation at the faculty and departmental level as well as decides on what programs to collaborate with other universities and external donor agencies.

15. (iii) The Rector is appointed with the rank of a cabinet minister, by presidential decree based on the recommendation of the Chairman of the Higher Council. As executive head of the University, he controls all academic, administrative and financial matters as well as executing the University's laws and regulations. He is assisted by the Vice-Rector who is also appointed by presidential decree. Responsible to the Rector via the Vice-Rector are the various academic faculties and centers, the

administrative, financial and service directorates -- the various functional units of the University, the heads of all these units -- the Deans and Director-Generals. Although policy-making powers are concentrated in both the Higher Council and the University Council, the Rector and the Vice-Rector, in consultation with the relevant Deans, play a central role in initiating and participating in the formulation of academic policy including admission policies. The content of the various courses of study is determined in consultation with the Deans and Heads of Departments. There is a high degree of centralization of power in the hands of the Rector, particularly in the areas of academic and administrative appointments and provision of finance to the various faculties, departments and administrative units. The Rector, for example, has the sole prerogative in the appointment of Deans, Deputy-Deans and Chairmen of Departments.

16. (iv) The Faculties. Each of the 12 Faculties are headed by a Dean and assisted by Vice-Deans. The Faculties are governed in academic matters by a Council, chaired by the Dean and composed of the Vice-Deans, Department Chairmen, and professors selected from each of the departments on the basis of seniority, and two annually elected members, from the rank of assistant professors and lecturers. The Faculty Council sets the curricula and program of instruction, coordinates the activities across the departments, specifies the examination system and presents to the University Council the Faculty's planned changes in curricula, examination system, graduation requirements, etc.

17. The Dean is responsible for the execution of the University's laws and regulations, as well as carrying out the decisions of the University's Council. In this task he is assisted by the Vice-Deans. The Dean, Vice-Deans and the Chairmen of Departments are appointed by the Rector from the rank of professors, with the exceptions provided by the law for Yemeni faculty members.

(b) Departments

18. The Chairman is the head of the Department and he presides over a Departmental Council. The Council is made up of all the professors and assistant professors plus two of the lecturers in the Department who are elected to serve the council according to their seniority. The Departmental Council is responsible for all matters pertaining to instructional, scientific and social activities of the Department.

(c) Academic Units

19. The University began its operation with 64 students and 9 teaching staff in 2 faculties -- the Faculty of Sharia (Islamic Law) and Law and the Faculty of Education, with Arts (Liberal Arts) and Science Departments. In 1973, Arts and Science Departments were split into two independent faculties (see Annex III) and a third Faculty of Commerce and Economics was added. The Faculties of Medicine and Health Sciences, and Engineering and the Language Center were established in 1983, while the Faculties of Agriculture and Postgraduate Studies and Scientific Research in 1984. A satellite Faculty of Education of the University was established in the Governorate of Taiz in 1984

to help meet the accelerating demand for school teachers for the rapidly expanding post-primary schools (elementary grades 7-9 and secondary grades 10-12), to reduce over-dependence on a costly cadre of foreign teachers and to attract more female students from the Governorates by providing training nearer their home. Since then, three more Faculties of Education have been established in the Governorates -- in Hodeida (1987), Ibb (1988) and Hajjah (1989). Thus the University has a total of twelve faculties.

(d) Admission Policy

20. In Yemen, all students with a secondary school graduation are entitled to enroll in the University, this includes qualifications obtained in post-primary institutions which are deemed to be equivalent to secondary school graduation such as the religious institutions (see Appendix, Table 8) [5]. The student intake is at the beginning of the academic year. Though admission into the University is automatic, students are not guaranteed their field of choice. Placement is determined by the student's secondary school stream, the choice the student makes, and the scores at graduation. Admission standards vary among faculties. Because of the high competition for admission and the limited facilities, the Faculties of Medicine and Engineering demand higher secondary school graduation scores. Admission scores on secondary school final examinations for the faculties vary between a minimum of 55 to a maximum of 95. To further screen the candidates, the Faculties of Engineering, Medicine and Education (only for English) administer an entrance examination. However, the examination process has now been discarded by the Faculties of Engineering and Medicine and selection through an interview has been substituted.

21. Students with the lowest scores and who therefore do not qualify to enter the faculty of their choice are 'dumped' into the Faculty of Arts as a 'last resort.' They end up doing a course in the Departments of Arabic Literature or Islamic Studies. Both these departments have the largest student enrollment in the Faculty of Arts. With the exception of the Medical, Engineering and Education Faculties, students with minimum entry qualifications are admitted without any further review of their ability to benefit from a university education.

22. The University does not charge tuition and provides a partial subsidy for textbooks. [6] Students pay two fees each year: a registration fee and a student activities fee both totalling YR1 215 about (US$18.00 at the March 1990 exchange rate). In order to encourage students to take up teaching

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[5] In the PDRY, students are admitted on the basis of the performance at the school-leaving examinations, and on interview for available slots in each of the University's faculties. The number of slots are determined through manpower planning. See Bikas Sanyal and L. Yaici. 1985. Higher Education and Employment in the People's Democratic Republic of Yemen Paris. UNESCO: International Institute for Educational Planning.

[6] A discount of 25% for Arts, Sharia and Law books (discontinued from 1990) and 50% for scientific books and manuals.

as a career, the University exempts Faculty of Education students from the student activities fee as well as gives them a stipend. The University has a program which enables qualified lower income students to work and study part-time. This facility also provides a second chance to the lower echelon members of the civil service to pursue tertiary education and, upon graduation, they can be upgraded within the public service.

(e) Organization of Undergraduate Curriculum

23. The initial academic year and curriculum of the University was structured along the lines of that of Ain Shams University in Cairo, a continuous nine-months' calendar (September-May) with Arabic as the main medium of instruction. In 1980, the University adopted a two semester and credit-hour system. The curriculum is divided into four (4) semesters of general education and four (4) semesters of professional education structured around the American system of flexible semester credit-hours. The academic year lasts from September to July, having two semesters of 18 weeks each (called a "two-term system"). This system was preferred as it facilitated the particular needs of each individual student and enabled development of part-time programs for working students. It also helped to reduce the repeater and dropout rates, while the earlier continuous nine-month calendar year system accompanied by a rigid examination system at the end, produced a high attrition rate and consequently a low graduation rate.

24. At the end of each semester, examinations are held. Students in some faculties, in addition to passing their end of semester examinations, must have satisfactory course grades and credit hours of attendance in order to proceed to the next academic year. A limit is placed on repetition -- only one for each year of studies and a maximum of four during the four-year cycle. However, if they fail they are allowed to resit during the academic year. The credit hours required for graduation vary from faculty to faculty -- from 132 credit hours for Arts graduates to 171 credit hours for Engineering graduates including lengthy laboratory training. The normal duration of study for students doing a first degree is four years, while agriculture and engineering students take five years and medical students six years.

25. A University-wide core curriculum (15 credit hours) consisting of Islamic culture, Arabic and English Language, was adopted in 1980 and had to be followed by all incoming students for the first two academic years. This was further reinforced by a Faculty-wide requirement (15-30 credit hours). The objective of these two requirements in the first two academic years was to provide all students with knowledge beyond the required chosen major and minor course of specialization. Department requirements were between 45 and 70 credit hours and they were for major and minor specializations. Finally, students were allowed to do elective course work (15 credit hours) which could be counted towards their major and/or minor. It is expected that through an exposure to the University and college-wide core curriculum, students would be better equipped in intellectual skills such as creative thinking and problem-solving, while their major and minor courses would enhance their academic knowledge and professional skills.

26. Course offerings are made across faculties to avoid duplication of classes and teaching facilities. The English course requirements for all students are taught by the Language Center, while the Faculty of Science teaches all the basic science courses for students from the Faculties of Agriculture, Education, Engineering and Medicine. Similarly, the Faculty of Arts teaches the basic academic courses to Education students. This system of course coordination between faculties and sharing of facilities among faculties, apart from being cost-effective, provides for cross-fertilization of both students and staff from different faculties.

27. Teaching in the science and technology-based faculties, such as Medicine and Engineering, is done mainly in English. However, the lack of an adequate general and technical vocabulary and communication skills in English among majority of the students have put them at a disadvantage, particularly in comprehending textbooks and references, which are largely in English. From the very outset, Arabic and Islamic cultures were made the University-wide core courses, thus protecting the cultural and religious heritage and satisfying the demands of the religious leadership as well as counter-balancing the potentially overwhelming influence of the western-oriented curriculum.

IV. Development

28. Within a span of less than two decades, the University of Sana'a has evolved into a full-fledged modern multi-faculty, multi-campus and largely a non-residential "mass-university"[7] system with an undergraduate training focus and a student population of about 36,700 in 1989/90. It continues to expand rapidly in terms of student enrollments. However, the expansion of University's resources, its staff members, and facilities have far from kept pace with the dramatic increase in student enrollments. All the University's graduates have thus far been employed, because of the government's guaranteed employment policy.

(a) Student Enrollment

29. The Government policy from the outset in 1970 was for the University to "balance the University enrollment to the capacity of the market place to absorb highly educated individuals."[8] Thus during the first decade, student enrollments grew and broadened from 64 in 1970 to 4,500 in 1979 with an overall student:staff ratio of 23:1 . This gradual enrollment trend developed despite the provision of free higher education, a job guarantee with high remuneration and a social prestige of a university degree. The growth kept up with the manpower needs of Yemen. However, this low growth was not because of a deliberate manpower planning policy, but rather due to the limited pool

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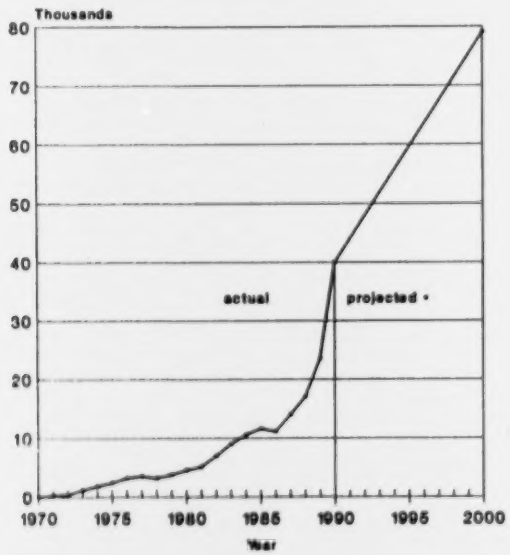
[7] A "mass-university" is a university with more than 20,000 students. See Edward Shils 1983 The Academic Ethic. Chicago: University of Chicago Press, p.12.

[8] Sana'a University, Phase I: The Master Plan, p.V.

of secondary school graduates who were qualified to enter the University.

30. In 1981 student enrollment gradually reached 6,634. However, from 1985, this trend accelerated. Student enrollment experienced an explosive growth owing to the high priority given to the expansion of secondary education in the late 1970s. In the 1985/86 session 2,163 new students were enrolled, and this made the total student population 12,881. Graph I below shows that especially in 1988/89 and 1989/90 academic sessions there was an 'enrollment explosion' in all the 12 faculties and the Language Center. The intake was 5,800 in 1988/89 and about 13,253 students in 1989/90, the latter intake far outstripping the Third Five Year Plan projected intake of 3,680 students in that year.

Graph I
Total Student Enrollment, 1970-2000



Source: University of Sana'a
• Projection based on World Bank Mission Data

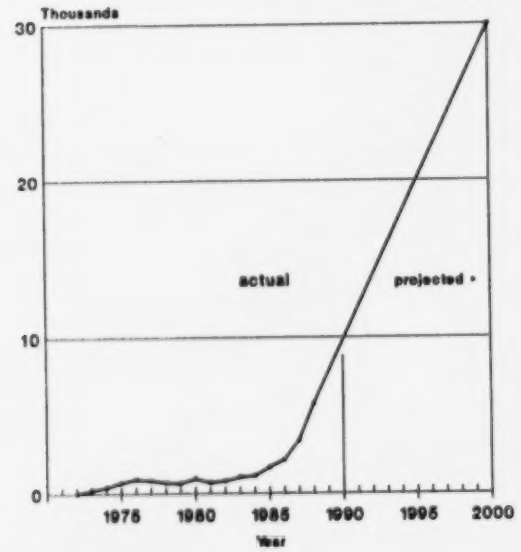
31. Within a three-year period, total student enrollments more than increased, from 17,000 in 1987/88 to 23,447 in 1988/89 and 36,700 in 1989/90[9] (about 9,000 to 10,000 of these being enrolled in the four satellite Faculties of Education). There were 715 non-Yemeni students in 1988/89 (largely from Palestine) (See Appendix, Table 1). As a result, a high proportion of the student enrollment (about 40%) were first year students. Further growth of

[9] A small number of students included in this are part-time students -- some of them are not actively pursuing their studies.

enrollment is expected for the remainder of this decade. In the 1990/91 session, student enrollment reached 44,000 and by the year 2000 it is projected by the Bank mission that at the present rate of intake it will reach 79,000. In spite of the fact that the University of Sana'a is a "mass-university", the higher education enrollment ratio is less than 1% of the age cohort, one of the lowest in the Arab world. Female participation in the University's student composition remains low at 14.5% (see Table 5). However, due to an absence of data, it is difficult to ascertain the equity aspects of this enrollment explosion, particularly in terms of socio-economic background and rural-urban origin.

32. Of the 1989/90 intake of 13,253 students, just over 7,300 students were enrolled in the five Faculties of Education -- the Sana'a Faculty alone enrolling about half this number -- making the Faculties of Education the fastest growing element of the University. This rapid growth of the Education Faculty is a marked reversal of past trends. Since 1973/74, the percentage of students enrolling in the Faculty of Education as a proportion of all students was decreasing, from 19.7% in 1973/74 to 3.4% in 1981-82. [10]

Graph II
Education Faculty Enrollment 1970-2000



Source: University of Sana'a
* Projection based on World Bank Mission Data

[10] Mohamed A. Alkhader. 1985. Low Enrollment of Students at the Faculty of Education and its Effects on the Second Five Year Plan in B.R. Pridham (ed.) Economy, Society and Culture in Contemporary Yemen. London: Croom Helm. p.190-99

This was due to two major factors: low social status and low wages. However, in order to attract students into the teaching profession, the Teachers Act of 1983 provided a far better wage and service incentives. A stipend of YR1 950-1,100 per month for five years, free accommodation where dormitories existed during training (or 200 YR1 extra if they provided their own housing), and for male students, a release from military service with five years guaranteed teaching contract after graduation and finally an assignment near a teacher's preferred location.

(b) Resources

33. From the beginning, the financing of the University depended substantially on donor assistance, mainly from the neighboring high-income oil-exporting Arab country of Kuwait with some assistance from UNESCO and western countries mainly in the form of fellowships. UNESCO assisted in the establishment of the Faculty of Education. Funding for the Engineering Faculty was partially provided by the Federal Republic of Germany and the World Bank, while the development of the Agriculture Faculty was financed by the Islamic Development Bank and the Saudi Fund for Development.

34. The University grew rapidly despite the relatively small initial Government contribution (less than 8% of the total operating cost). Kuwait made major contributions towards the physical facilities at the new campus and the payment of competitive salaries for the non-Yemeni staff. However, declining oil revenues have caused a gradual reduction in donor assistance and a significant increase in the Government's share. The Government's share of the University operating cost rose from 50% in 1985/86 to 60% in 1989/90; and to 65% for 1990/91.

35. Table 1 shows the University of Sana'a's budgetary expenditure over the period 1987-90. The data reveals that total real expenditures have been growing at an average annual rate of 31.2%, although this rate slowed considerably in 1990 to 4.5%. Growth has varied according to expenditure categories. Capital expenditures, for instance, have been the most rapidly expanding item at an average annual rate of 46.9%. Expenditures on Goods and Services and Salaries have grown annually by 31.0% and 23.3% respectively, while subsidy expenditures have consistently fallen by an average of 11.6%.

Table 1: University of Sana'a Annual Budget Expenditure
(YR1s Thousands: 1987 Constant Prices) *

ITEM	1987	1988	1989	1990	Average % Annual Rate of Increase
Salaries	63,123	70,492 (11.7)	98,078 (39.1)	118,381 (20.7)	23.3
Goods and Services	42,934	59,162 (37.8)	84,097 (42.1)	96,549 (14.8)	31.0
Capital Expenditure	28,299	42,939 (51.7)	109,245 (154.4)	89,789 (-17.8)	46.9
Subsidy Expenditure	895	789 (-11.8)	683 (-13.4)	618 (-9.5)	-11.6
Total	135,251	173,383 (28.2)	292,102 (68.5)	305,337 (4.5)	31.2

Source: University of Sana'a

Figures in Parentheses are percentage increase on previous year

* Source of GDP Deflators is World Bank Memorandum (1989)
Note: 1989 and 90 figures are estimated using average deflator figures for the past 7 years

Table 2: University of Sana'a Annual Internal Revenue
(YR1s Thousands: 1987 Constant Prices) *

ITEM	1987	1988	1989	1990	Average % Annual rate of increase
Service Revenues	7,294	6,679 (-8.4)	11,657 (74.5)	11,304 (-3.0)	15.7
Special Revenues	110	71 (-35.5)	416 (487.7)	754 (81.3)	89.8
Total	7,404	6,750 (-8.8)	12,073 (78.9)	12,057 (-0.1)	17.6

Source: University of Sana'a

Figures in Parentheses are percentage increase on previous year
* Source of GDP Deflators is World Bank Memorandum (1989)
Note: 1989 and 90 figures are estimated using average deflator figures for the past 7 years

36. The University has generated a limited amount of internal revenue to assist its financing. In real absolute terms, the revenues have increased -- solely due to an increase in 1989 -- at an average annual rate of 17.6% between 1987-90, with special revenues growing much faster than those for service. However, Table 3 shows that when the internal revenue is compared to the rapidly increasing overall budgetary expenditure, the proportion has been declining by an average rate of 10.8%. Internal revenue currently accounts for only 3.9% of the total University expenditure, leaving the University almost totally dependent on Government and donor assistance for finance.

Table 3: University of Sana'a
Annual Internal Revenue as Percentage of Total Expenditure
(YRls Thousands: 1987 Constant Prices) *

ITEM	1987	1988	1989	1990	Average % Annual rate of change
Internal Revenue as % of total Expenditure	5.5	3.9 (-28.9)	4.1 (6.2)	3.9 (-4.5)	-10.8

Source: University of Sana'a

Figures in parentheses are percentage change on previous year

(c) Staff

37. The University appoints members of its academic and administrative staff either on tenure or contract. All Yemenis are appointed to tenure positions, while non-Yemenis are on contract. The shortage of middle and high-level manpower forced the University to employ expatriate teaching and non-teaching (technician and administrative) staff from neighboring Arab country universities -- predominantly from Egypt, and to a lesser extent from Syria, Iraq, Sudan, Jordan and Morocco. For foreign language teaching, and in those fields where English is the medium of instruction (Medicine and Engineering), non-Arab expatriates are recruited. The University has not faced any difficulty in recruiting them, for two reasons. First, the relatively attractive salaries and fringe benefits of the expatriate staff are largely covered by funding from Kuwait. Second, the working conditions are reasonable. Teaching loads are determined by rank. Professors are expected to teach between 8-10 hours a week, while the norm for assistant professors, lecturers and assistant lecturers is between 10-12, 12-14 and 14-16 hours respectively. However, student "contact-hours" has not been stipulated as obligatory.

38. The national development plans as well as the University's Higher Council policies have consistently emphasized the Yemenization of the academic staff. Therefore, since the University's inception a number of qualified Yemenis graduating both from the University of Sana'a and from overseas institutions, have been included for overseas fellowships under the University staff development program for masters and doctoral degrees (see Appendix, Table 5) to upgrade teaching and administrative capability. In 1988, there were 223 Yemeni staff training for higher degrees in various foreign countries such as Egypt (109), the United States of America (63) and the United Kingdom (30) (see Appendix, Table 6). However, few women are in this program because Yemeni tradition prevents them from studying overseas, unless accompanied by a male member of the family. Like in many other Arab countries, this custom of severely limiting women's access to overseas higher education is creating a two-tier staff composition. The majority of staff are men overseas trained, while the handful of women staff are largely trained at the University of Sana'a. Until a change in this tradition occurs, the staff will continue to be predominantly male and overseas trained. Many of the overseas training fellowships have been provided by donor agencies and by joint donor and university contributions. On completion of the program, university sponsored fellowship holders must serve the University a minimum of twice the supported years.

39. In spite of competition from neighboring oil-rich Arab countries for professionals since 1976, the Universities has successfully recruited faculty members, through which it has attracted qualified Yemenis from overseas to take up academic and administrative positions. In the 1988/89 academic session, out of a total staff of 470, 273 or 58% were Yemenis, and over 90% of whom were men. In June 1989, of the 111 academic staff members in the then only four Faculties of Education, nine were women (8%).

Table 4: Number of Instructional Staff in Selected Faculties

Faculty	Yemeni		Non-Yemeni	
	1982/83	1988/89	1982/83	1988/89
Law	5	20	13	8
Arts	22	52	46	39
Science	13	40	72	62
Commerce & Economics	26	39	18	14
Education	11	50	5	21
Total	77	201	154	144

Source: University of Sana'a

(d) Research and Postgraduate Programs

40. Though the primary emphasis of the University is teaching, achievements in research and publications are criteria for staff promotion. However, very little research is being conducted in the University due to lack of funding. The Faculty of Post-Graduate Studies and Scientific Research seeks to encourage all research to be oriented toward the needs of Yemen. In particular, through its newly established Center for Science and Technology, the faculty hopes to conduct applied research in the field of industry, energy, agriculture and irrigation, and health and environment. Funds were being solicited for research activities from USAID, the Italian Government, UNESCO and UNDP.

41. In 1983, the University was granted the licence to confer postgraduate degrees. Because of a demand for postgraduate studies, the University began offering postgraduate studies in the 1984/85 academic session at the Faculty of Postgraduate Studies and Scientific Research. The objective is also to encourage Yemeni graduates to obtain higher degrees in order to replace non-Yemeni staff. Total postgraduate enrollment has increased from 234 in 1988 to 341 in November 1989. The program, because of a lack of human and material resources, offers a limited variety of postgraduate studies largely at the diploma level (1 year) and in education, commerce and Sharia and Law, a few students at masters level program (2-3 years) in the Faculties of Arts and Science and a single Ph.D. candidate in sociology (see Appendix, Table 7). A joint Ph.D. program has been instituted with the Universities of Al Azhar and Cairo in Egypt. Discussions are also in progress with other Arab universities for similar joint programs. The University so far has produced one Ph.D. candidate in Chemistry in 1987. Diploma programs have also been instituted in International Politics, Accounting, Development Economics and Planning.

42. Since 1983/84 the Faculty of Education has offered a general diploma (three semesters) -- a pedagogically oriented program for graduates of Arts, Science and other Faculties who want to be secondary school teachers, and a special diploma program -- a three-semester advanced study for Faculty of Education graduates and educational practitioners in the fields of educational administration and supervision and curriculum development and teaching methodology. Both these programs can be accommodated as partial requirements towards an MA program in education in universities in Cairo or Jordan. Only students who had a 'good' rating in their undergraduate program can gain entry to the special diploma program. Currently, approximately 20 Ministry of Education employees are pursuing diploma program, while a single candidate is pursuing a masters degree in education.

(e) Physical, Social and Welfare Facilities

43. The University's two campuses house all the eight faculties located in Sana'a. Each of the Faculties is housed in separate buildings. Support facilities exist such as a Central Library, lecture theatre complex, staff and student housing and sports grounds. The Faculties of Agriculture, Engineering and Medicine have new buildings. In the Medical Faculty building, donated by Kuwait at a cost of US$35 million, the present enrollment has not reached full

capacity as it is projected to enroll as many as 2,000 students when fully functional. Student health service and sports facilities are provided. There is also scope for social and cultural activities through student clubs. Because of large student numbers and meager resources, these facilities are overstretched -- they are currently serving in some cases about five times the number of students they were intended to serve.

(f) Library Facilities

44. The University has a Central Library and satellite libraries at each of the faculties. The Central Library holds around 140,000 items, 60% of which are in Arabic, 39% in English and the rest in other languages. Many of the holdings in English were either inappropriate or outdated editions. Current periodicals acquisition is limited to about 765 -- 535 in English and the rest in Arabic. The combined libraries have 13 professionals and 65 non-professional staff. Seven of the 13 professional were non-Yemeni. Two of the senior Yemeni professional librarians are involved in full-time administration. Only three Yemeni staff are on overseas training and there appears to be a reluctance on the part of Yemenis to take up library science courses because of poor career prospects.

(g) Placement of Graduates.

45. The Government of Yemen adopted a policy of guaranteed employment in the public sector to all Yemeni graduates, both from the University of Sana'a and from overseas universities. They are obliged to work for at least two years in the public sector before they can move into the private sector. Employment in the private sector are more attractive as wage levels in the private sector are double to triple those in the public sector, however, graduate employment opportunities in the private sector are very limited. This limited graduate employment demand is confined to fields such as accounting, engineering and computer sciences.

46. Until 1988, the process of Yemenization in the public sector has enabled Ministry of Civil Service and Administrative Reform (MOCSAR) -- the agency responsible for graduate placement -- to place all graduates, mainly from the Faculties of Arts, Sharia and Law and Commerce and Economics, in spite of the rise in their numbers from 417 in 1981 to 1,588 in 1986 (see Appendix, Graph I and Table 7). However, the situation is changing, especially the supply of humanities and social science graduates, with a number of graduates returning from Saudi Arabia, is fast outstripping the demand for them in the public sector. In 1989, MOCSAR had 4,000 graduates for placement. The bulk of them are with qualification in the humanities and MOCSAR is facing increasing difficulties in placing them within the public sector in line with the Government's guaranteed employment policy.

V. The Issues

1. Low Internal Efficiency and Quality

(a) Excessive Expansion

47. Due to political pressure, the university system continues to grow at an explosive rate compared to its steady growth of the 1970s and early 1980s. In spite of serious financial and manpower constraints the Faculty of Education at Taiz is earmarked for an autonomous university status in 1992. The expansion into a "mass-university" has occurred on an *ad hoc* basis, with student enrollment far outstripping the projection of the University's initial Phase I of the Master Plan -- approximately 5000 students by 1990. The dramatic growth of student numbers in the University of Sana'a has severely affected the institution's overall quality. It has strained both the university administration and academic provision -- the fundamental issue being the choice between quantity and quality within a growing resource, placement and management constraint.

48. Due to a 'revolution of rising expectations' large sections of Yemeni youths and their parents realize that in order to reap the benefits of modernization and 'get ahead in life' they must have higher educational credentials. This is further reinforced by the Government's policy of a reward system based on credentials between graduates and non-graduates which constitutes substantial wage differential and guaranteed employment to graduates. The higher the educational credentials, the better are the chances of upward social and economic mobility. The near full subsidization of education at all levels for every Yemeni citizen [11] has kept the private costs low, while the private return on university education is much higher than on pre-university education because of high wage differentials. Therefore, a high expected future benefits, together with low private cost and high unemployment among secondary school leavers have created widespread parental pressure on children, especially sons, to take up higher education. The expansion of education and the rapid growth and diversification of secondary education have facilitated greater participation and success rates in secondary education. Furthermore, socio-political pressures to improve opportunities obliged the University to enroll any candidate who satisfies its minimum entry requirements. As a result, more and more students from the diverse educational routes want to pursue higher education. This has affected quality because: firstly, many of them do not possess the prerequisite educational background to benefit from higher education; secondly, the system which subsidized higher education entirely on need -- with no focus on merit and cost recovery serves as a disincentive for greater striving on the part of the student; lastly, the University of Sana'a does not have the resource, physical and management capacity to cope with even 50% of the current of enrollment.

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[11] Mohamed A. Ackhader. 1985. Low Enrollments of Students at the Faculty of Education and Its Effects on Second Five-Year Plan in B.R. Pridham (ed.) *Economy, Society and Culture in Contemporary Yemen*. London: Croom Helm. p191.

49. Without significant policy changes, demand will continue to grow rapidly. This is because as the population is growing at a rate of 3.3% annually, 46% of its present estimated population is under 15 years of age and the Government has a strong commitment to education as a basic human right of every Yemeni citizen. Since 1970, educational expansion and the provision of (almost free) education at all levels have characterized national policy. As a result primary school enrollments grew from 24% of the school-age population in 1975 to 79% in 1988. The number of secondary school graduates eligible for university admission from secondary education alone increased from 2,181 in 1979/80 to 13,211 in 1988/89 (see Appendix, Table 8). If to this number are added the students who have graduated from other institutions and who are eligible for admission to the University, the increase in overall numbers was from 2,728 in 1979/80 to 16,112 in 1988/89, an increase of 591% or a sixfold increase within less than a decade. This increase will continue at an accelerated rate henceforth, as the enrollments are projected to rise in the lower (grades 7-9) and upper (grades 10-12) secondary education from 238,000 and 81,000 in 1988 to 474,000 and 289,000 respectively by the year 2000. A growth in the corresponding school age population from 30% to 37% in lower secondary and from 14% to 27% in upper secondary. This will result in a burgeoning social demand, an expanding higher education system and an impossible budgetary burden if no disincentives to this pattern emerge.

(b) Low Female Enrollment

50. In the Arab world, in defiance of entrenched traditional practice, many Governments including Yemen have promoted female participation in higher education. This is reflected by a tenfold increase in the enrollment of female tertiary-level students in Arab countries from 1965 to 1985.[12] In percentage terms, there was an overall increase of women in tertiary education (which included universities and other post-secondary institutions) from 24% in 1965 to 33% in 1985.

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12 S.A. Jarrar and B. Massialas. 1983. Education in the Arab World. New York: Praeger.

Table 5: Enrollment and Percent of Female Students in Universities and Equivalent Institutions in Selected Arab Countries

Country	1965		1975		1980's		Year
	Total	% Fem	Total	%Fem	Total	%Fem	
Algeria	8,177	20.1	41,847	-	108,181	-	1984
Egypt	64,506	19.9	411,097	30.1	613,570	33.6	1983a
Jordan	1,169	40.2	4,805b	29.2	25,929	38.8	1984
Morocco	7,979	11.3	35,081	19.2	126,481	32.5	1984
Syria	32,653	16.8	65,348	22.4	123,735	29.7	1983
Tunisia	5,629	18.1	20,505	25.7	38,829	36.0	1984c
Yemen, A.R.	-	-	2,408	10.2	3,403d	14.5	1988/89
Yemen, P.D.R.	-	-	934b	18.2	3,645	52.3	1983c

a 1983 excluding Al-Azhar University
b Figures for 1974
c Third set of figures for all levels of higher education

Source: George I. Za'rour " Universities in Arab Countries " PPR Working Paper No.62

51. However, in spite of the Yemen Government's promotion of female participation in higher education and the country's development, in 1988/89 female students comprised only 14.5% of the total student population of 23,447 -- by comparison with 52% share of female students in the former Peoples Democratic Republic of Yemen's tertiary institutions as a whole as early as 1983. In certain faculties, Arts, Medicine, Education and Science, female student enrollment was much larger than the University-wide average, namely 44.6%, 44.3%, 23.3% and 27.2% respectively. The Law Faculty had the lowest female enrollment, 1.9%. Because of the low enrollment of female students, the female graduate output over the years has continued to be small vis a vis male graduate output (see Graph III). It was not possible to ascertain from which socioeconomic background the majority of the female students and graduates came from.

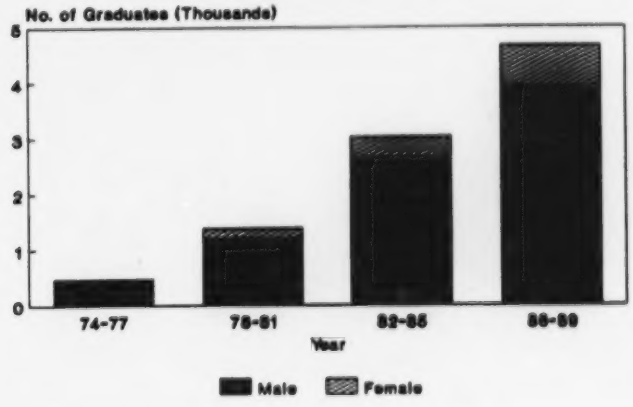
Table 6: Percentage of Female Enrollment by Faculty

Faculty	1973/74	1982/83	1988/89
Arts	15.2	23.2	44.6
Law	0.5	2.4	1.9
Science	14.8	28.5	27.2
Commerce	6.7	9.7	9.5
Medicine	-	-	44.3
Engineering	-	-	9.1
Agriculture	-	-	4.5
Education	10.6	17.8	23.3
Total	10.1	11.7	14.5

Source: University of Sana'a

52. The establishment of Faculties of Education in the Governorates of Taiz, Hodeida, Ibb and Hajjah, has made higher education accessible at the local level to female students and increased their participation rate. For example, the female share of student enrollments to males in Taiz, Hodeida and Ibb in 1988/89 has improved -- they were 27.8%, 21.3% and 31% respectively (see Appendix, Table 1). As an incentive to join the teaching service, female students from the Faculty of Education are provided free accommodation, while those in the other faculties enjoy a subsidized rent which amounts to YR1 150 (US$15) a month.

Graph IIi Total Graduate Output, 1974-1989 Male-Female Composition



Source: University of Sana'a

53. This low enrollment of females, especially in the more professionally oriented faculties (except medicine and education) needs concerted action. There are several sociological obstacles to wider female participation in higher education. Apart from the low female school attendance rate at post-primary level, early marriage, the dominant view that a woman's role is essentially a housewife, and the deep rooted Yemeni societal and family traditions discourage their female children from travelling away from home to attend tertiary education. Also the lack of proper and adequate female student accommodation within the University campus is a major deterrent to the enrollment of female students from the governorates outside Sana'a. However, a female student dormitory is now under construction. Until then, female students are accommodated in limited rented premises.

(c) High Student:Staff Ratio

54. The University gives priority to undergraduate teaching. However, the explosion in student numbers has far outstripped academic staff recruitment. As a result the overall student:staff ratio has risen from a satisfactory 23:1 in 1978/79 to an alarming 80:1 in 1989/90 and varied enormously from faculty to faculty. The most drastic increase was in the Faculty of Arts -- the faculty of 'last resort' -- which has a student:staff ratio of 500:1 in 1989/90 compared to a ratio of 19:1 in 1982/83. The Faculty of Commerce and Economics has a student:staff ratio of 230:1 compared to 41:1 in 1982/83. Though the growth of teaching staff has been significant, from 9 in 1970 to 550 in 1989, it has not kept up with the phenomenal growth in student numbers.

55. Measures to reduce the work load of the full-time staff by appointing part-time lecturers did not materialize. This was largely because suitably qualified part-time staff were not available. Therefore, the drastic rise in the student:staff ratio led to heavier teaching and grading load to full-time staff and less time for continuous assessment, research, curriculum and teaching improvement. The heavier grading load[13] has resulted in long delays in announcing examination results. It virtually precludes any instructional mode other than mass lectures. This also contributed to an overall lack of research, seminars and guidance of students. For example, in the Faculty of Education there are too many students for staff to spend as much time as necessary in supervising the teaching practice course. The use of part-time staff has brought about a lack of academic cohesion, advice and coordination of academic activities in the various subject departments.

(d) Inadequate Resources and Facilities

56. (i) Financial. The University lacks an annual budgetary framework outlining its income, allocation of its resources to the various units and their expenditures in a systematic and predictable fashion. In addition, the inability of the government to provide adequate resources through a standardized budgetary framework severely curtails the University from

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[13] In some courses there were as many as 2,000 scripts to be graded by staff members.

planning and providing an effective and efficient delivery system. The University is increasingly dependent upon the Government for funding and has no recourse to alternative funds. Currently the University's recurrent expenditure is negotiated with the government on an ad hoc basis - as and when more funds are needed. However, there has been a rapid deterioration of the country's macro-financial position between 1987- 90. In 1988, the Government's fiscal deficit reached 14% of the GDP. In 1989, worker remittances plummeted to US$505 million from a record of nearly US$1.7 billion in 1983. [14] Donor assistance too declined. The debt service has increased sharply from 7% of foreign exchange earnings in 1985 to 23% in 1989. In spite of the resource constraints, the Government's expenditure on education increased from 11.2% in 1978 to 20.3% in 1989 of its total expenditure. The increase only just kept pace with enrollment growth, in current terms, which implies a substantial decline in real per capita resources. This growth of education expenditure has been at the expense of other sectors of social welfare requiring public financing. Therefore, the increasing Government commitment to education in spite of a growing overall financial constraint suggests the need for the creation of an effective budgetary and management system accompanied by policies that would promote greater internal efficiency, ensure optimal performance in planning, programming and the diversification of sources of funding.

57. (ii) Physical facilities. The physical facilities, particularly lecture theatres and laboratory space (except for the new buildings at the Medical and Engineering Faculties), and support services are inadequate for the expanded curriculum and student body. The overcrowding of classrooms, laboratories, lecture theatres and cafeterias is common place. In some of the overcrowded lecture theatres students were sitting outside the doors trying to comprehend what was going on inside. The lecture theatres and other facilities, in particular in the Faculties of Arts, Sharia and Law, Commerce and Economics, Science and the Language Center are the most seriously overcrowded. For example, in the Faculty of Arts a lecture theatre which has a 200 seat capacity is being used to lecture to 500 students. The Science Faculty has a severe shortage of laboratory space, materials and equipment. It also does not have the resources to maintain its existing equipment. In addition, the system lacks adequate language laboratories and computers, cafeteria and sports facilities.

58. Academic staff members (except Deans, Vice-Deans and Heads of Departments) are not provided with separate offices. For example, in the Language Center about 20 staff members were cramped into a room and this was characteristic of most Departments. On the whole, the maintenance of existing buildings and equipment was poor. This crisis will worsen with increased student enrollments. The absence of adequate physical facilities, lack of properly equipped laboratories, libraries and up-to-date equipment for a University, affects enormously the efficiency, quality and implementation of its curricula and its instructional capacity.

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[14] In 1985, the Ministry of Finance estimated that worker remittances fell by 50% of the level of the remittances ten years earlier.

59. (iii) Library Facilities. The lack of an adequate library collection is a major constraint upon the functioning of both students and staff. In particular, teaching and research warrant the availability and familiarity with the latest scientific and scholarly publications. Neglect of this will result in an intellectual poverty of the curriculum and of the quality and quantity of research output. The collections both in the main and satellite are inadequate, mostly out-of-date textbooks, inappropriate books and journals. They are not computerized. The library is experiencing a critical shortage of funds to acquire current titles of textbooks, either appropriate scholarly books and periodicals; of the 1988/89 allocation of YR1 10 million to the library, some 66% went to subsidizing student textbooks. Because of an acute shortage of library staff, the satellite libraries in the Faculties of Commerce, Education and Medicine are kept closed. Students solely depend on textbooks and lecture notes offered for sale by their course professors or lecturers.

(e) Administration

60. University administration is highly centralized and under direct government control, particularly in the areas of authority, administration and finance. This limits the University autonomy, thus the flexibility and initiative of the various faculties and directorates is curtailed. As a result, the University does not possess the in-built administrative mechanisms as well as adequate independent contingency resources needed to handle demands of the magnitude it faces now because of high student and staff numbers.

61. The majority of the Yemeni academic staff are relatively young with little experience or adequate training in teaching, research and administration. There are hardly any mentors to guide them. Apart from the evidence of educational and professional qualifications, promotion within the University is based on research and publications, length of service and experience. The current emphasis on rapid Yeminization has resulted in senior faculty administrative positions being occupied by inexperienced and unqualified administrators. A similar situation prevails in the various non-academic support services of the University. Early diversion into administration, hampers Yemen academic staff's development as teachers and researchers. Therefore, unless present policies are reviewed there is every possibility of further deterioration of the overall academic quality and management efficiency that was apparent in the University. In particular, the University's records including enrollment data and student records are kept manually. They are in a dismal state.

(f) Student Flows

62. There is a high percentage of dropouts and repeaters, particularly in the first and second years of study. The overall success rate, measured by the number of students enrolled in the first year in 1980/81 to the number graduated after four years in 1983/84 shows a low efficiency rate of 20.5%. This is attributed to a variety of factors: (i) the lack of sufficient preparation at the primary and post-primary schools, (ii) automatic admissions to all secondary school graduates, irrespective of their ability to benefit from a higher education, (iii) the poor quality of instruction, (iv) students

who perform poorly lose their motivation and drop out, and (v) the poor support services provided at the University. Other factors such as part-time employment, family commitments, early marriage, the easy access and the virtually free education creates an excess demand even among those with little chance to benefit.[15] Data on repetition and dropout rates at different faculties (subject area) and the University as a whole, and duration of study before graduation, are not easily obtainable from the records. However, data from the Faculty of Education indicate a high failure rate, especially at the end of the first year of study, is 50%. Overall failure rates at the undergraduate program are around 20-30% and it is highest at the first year. It is estimated that dropout rates vary between the faculties from 15-50% and the majority of the students, particularly the part-time students, take very much longer than the stipulated time to complete their credit hours. The large intake and the eventual low graduate rate, seems to contribute to a high wastage of expensive physical facilities and other inputs.

(g) Quality

63. The overall quality of graduates' output is low. However, because of the larger number of students a proper evaluation of the quality is not possible. The low quality is mainly due to the following factors: (a) weak planning and poor management support to teaching and research departments; (b) the use of Arabic as the main language of instruction combined with the poor working knowledge of English has isolated the majority of the students from the updated scientific and technology textbooks and reference literature; (c) inadequate and poor laboratory and workshop facilities and equipment; (d) low postgraduate qualifications of the teaching staff, particularly the part-time staff; (e) a small full-time teaching and research personnel; (f) shortage of textbooks, poor library holdings and limited access to them; (g) heavy dependence on lecture notes; (h) inadequately prepared secondary school graduates; (i) inadequate budgetary provision for operation and maintenance; and (j) the lack of minimum physical and support facilities for individual academic staff and students.

2. External Efficiency

Employment: Surpluses and Shortages

64. In the past, because of overall shortages of graduate manpower, no effective mechanism existed to plan the demand and supply of graduates needed and their specialties. The graduate manpower needs of the country are undergoing a rapid change. The match between supply of graduates and the demand for their services does not correspond. From 1988 the supply of humanities, social sciences and Sharia and law graduates has exceeded the absorptive capacity of the main employer -- the public sector. The tightening fiscal situation combined with an enrollment explosion at the University and increasing graduate output, makes the job prospects poor for future graduates

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[15] IEES (Improving the Efficiency of Education System). 1986. Yemen Arab Republic: Education and Human Resources Sector Assessment. Tallahassee: Florida State University. pp.8-20.

in the humanities, social sciences and Sharia and law. However, the Government's job guarantee to graduates had thus far avoided the open unemployment of graduates.

65. The guaranteed employment of all graduates irrespective of their speciality or Government needs is becoming unsustainable. Therefore, the Government is trying to divert the surplus graduates, particularly from the sciences, humanities and social sciences, to teaching. This is to avert the continual employment of expatriate Arab secondary school teachers who account for 70% of the teaching force and are paid a higher average salary (YR1 82,000 per year) as compared to a Yemeni teacher (YR1 53,548). They annually cost an estimated US$80 million equivalent in foreign exchange cost. Till the Gulf crisis, their salaries were subsidized by the oil-rich states, particularly, Kuwait.

66. If measures are not taken promptly to channel graduates into teaching, the private sector and self-employment, graduate unemployment will have serious effects in the 1990s on public sector finance and create considerable distortions in the labor market. However, the Government from 1990 has plans to introduce a competitive examination for public sector jobs. The candidates who do not succeed in this selection process will be asked to seek employment in the open labor market. The chances of humanities and social science graduates to be employed in the private sector are less likely than graduates with technology and applied science training.

67. At the same time there is a major shortage of Yemenis with the requisite professional, applied scientific and technical training and experience, in areas such as Agriculture, Engineering, Medicine and Accounting, including well-qualified secondary science school teaching. The country continues to employ a large number of expatriate professionals and technicians to staff in all sectors, including education, mainly at secondary and higher levels. For example, in 1986 there were over 6,000 expatriate engineers and engineering technicians and over 8,000 non-Yemenis teaching at the post-primary levels. Forty-two percent of the University staff are non-Yemeni. Most of the expatriates are paid relatively higher wages than Yemenis and in valuable foreign exchange.

68. University facilities for producing science oriented secondary school teachers and students trained in science and engineering are quite limited. Furthermore, both the supply and quality of secondary school leavers with science and mathematics qualifications seeking to pursue science and science based fields like engineering and computer science at university level, are still inadequate. This situation seriously affects the possibility of a good supply of competent science teachers, engineers, doctors and other science-based professionals in a rapidly developing technologically oriented, global economic system. However, given the imperfect nature of manpower planning, shortages in key areas will always exist unless there is an overall surplus of graduate output.

VI. Policy and Institutional Measures.

69. Political expediency and lack of autonomy is pushing the University of Sana'a's to expand in an uncoordinated and unplanned direction. This expansion cannot be sustained given the nature of Yemen's economy. It is characterized by serious macro-imbalances and micro-distortions. The Yemeni economy is plagued with a rapid decline in foreign remittances and growing foreign debt. These have seriously impeded the demand for labor at all levels. Therefore, there is an urgent need for Yemen to achieve a balance between a mass access higher education system and a selective access which maintains a minimal quality within a stable financial framework if the country wants its investment in higher education to be maximized. However, the rapid expansion of the sub-sector calls for an urgent need for rational planning and investment in higher education in order to meet the emerging national needs and priorities. An adequate supply of relevant and well-trained middle and high-level manpower is of paramount importance for Yemen's development. In order to achieve maximum benefits from its higher education investment, Yemen should adopt specific goals and strategies in the areas of: (i) performance and quality, (ii) greater efficiency, (iii) gender equity, and (iv) its resource base.

VII. Goals and Strategies

(1) Performance and Quality

(a) Diversify Structures

70. In order to protect the general quality and effectiveness of the University, special policy and institutional measures will need to be taken to cope with the rapid increase in enrollment, the problem of absorption of graduates and the declining resource base. In this strategy, a priority should be given to broaden range of options to secondary school graduates to other forms of high quality and employment-responsive post-secondary programs. For example, institutions that could accommodate some of the new demands for specialized technical occupations that are currently filled by expatriates. Given the limited resources and the other pressing resource needs of the country, donor assistance is crucial for Yemen's development plans in this subsector. The University's function should be limited to (i) teaching students for high level managerial/professional careers, (ii) applied research in a few high priority areas, and (iii) analytical support for design and evaluation of development policies.

(b) Adjust Labor Market Policies

71. There is a high priority need for the major agencies MOE, MOCSAR and Ministry of Labor to collaborate and systematically address at regular intervals the relationship between the size of student intake and their distribution among the different faculties of the University in relation to labor market needs. In this evaluation placement of graduates should be emphasized, showing trends in numbers going on to employment, higher training, unemployment, etc., by type, subject area, level, expected income and gender. Otherwise there will rapidly emerge a serious structural imbalance. This will

be due to an increasing mismatch between job expectations generated by the University education and the job opportunities in Yemen, in particular for women as the majority of them concentrate on the humanities and "soft" sciences. To minimize this mismatch, tracer studies and labor market surveys have to be carried out. These studies will provide valuable information on the relationship between high-level manpower training, skill requirements and the labor market adjustments that are necessary in a economy. Against the background of these studies, the University has to take action to review its admission policy, course offerings and curriculum. In particular, the University's course offerings and curriculum should be in line with the technological development of the country. It should boost enrollments in targeted fields of study, particularly in the applied sciences, engineering and information technologies, to meet the requirements of the society. Priority recommendation: Government should no longer guarantee employment to graduates. Instead, graduates should be encouraged to take their chances in the open labor market. The University curriculum should prepare them for this likelihood.

(c) Improve Teaching and Research

72. Academic staff development programmes at the postgraduate and post-doctoral level should be formulated to continuously enhance the University's staff quality through exposure and training in current teaching methodology, research techniques and in-house management training. This should be accompanied by periodic appraisal of the effectiveness of this training and lifelong learning. In particular, upgrading of teaching methodology, research techniques, regular evaluation of quality and lifelong learning will help in enhancing teaching/learning process and the development of an indigenous research and evaluation capacities within the University and the country as a whole. The desirability of research has been in principle accepted by the University. However, it should make relevant research as an important in-built feature. Some of this could be done through enhancing the present exchange, training, visiting and fellowship schemes. A set of transparent criteria to measure staff performance must be instituted. For example, staff should be periodically subjected to peer review and evaluation of their teaching by students. This should be accompanied by built-in incentives for staff who perform well in teaching, research, consultancy services and contract research. Greater effort should be taken by the University to encourage more women to take up both academic and administrative positions. All these measures should not jeopardize the performance of the University's primary goals - high quality teaching and research.

73. The majority of the Yemeni staff on the different faculties, both currently teaching and on training, seem to be relatively young and more or less of the same age cluster. However, in the long-term interest it may be beneficial for the University to pursue the policy of recruiting and training of the academic and administrative staff for the University as a whole and for each of the departments to be spread over a long-term plan. There is an urgent need to quantify the work load of academic staff in terms of the proportion of time rpent on teaching, research, student supervision, consultancy, administration and service.

(2) Efficiency

(a) Revise Admission Policies

74. The existing facilities in the University of Sana'a cannot accommodate all students who seek admission to it. Therefore priority should be given to stabilizing and limiting enrollments at a level commensurate with the University's current resources and to quality improvement. In order to do this, it is necessary to reconsider the current policy of enrolling all secondary schools graduates. The Government should resist the pressure to expand university enrollment beyond the capacity of the university. University education should be made available for only those who have an ability to benefit from it. This should include the talented but poor. It is recommended that the Government should consider University enrollment through selective admission. This will help to minimize the current dropout rates, achieve a higher academic standard, provide efficiency within the University, and also assist in more efficient match with labor market. The excess demand should be channelled to alternative short-cycle or sub-professional tertiary training programs with an emphasis on applied science and technology which are employment-responsive and deemed necessary for the country. In addition, secondary school graduates should be encouraged to enter the labor market and pursue further education and training on a part-time and/or on-the-job basis. The University of Sana'a has provisions in some of its faculties for part-time study and this provision could be expanded with growing demand.

(b) Strengthen Management

75. At the institutional level, it is necessary to strengthen university management and productivity, to improve planning of university development, finance system and operation and monitor its efficiency through proper data management and dissemination. A major review of the current management staff configuration for appropriateness of job descriptions, levels of responsibility, and their requisite qualifications has to be undertaken. In particular, the University's Technical Office, which is responsible for planning, research and data management, should be reviewed and strengthened and computerized in order to maintain a good data base on student admissions, flows and staff. The University's central administration should identify the activities that require central control and decentralize the other activities from the central administration. In order for this to be effective and sustained there should be improvements in the effectiveness and efficiency of all the staff, whether academic, administrative or support staff, involved in management and support services. They should be put through sustained and systematic short and long-term management development programs to prevent obsolescence. In these staff development programs the training should in particular focus on the various key figures in the University -- the Deans, Heads of Directorates and the Deputies -- to assume greater responsibilities. All this training should be well conceived and planned.

(c) Ensure Adequate Physical and Material Facilities and Support Services

76. There is an urgent need for the University to protect and improve the physical facilities. If the value of the University's capital investments are not protected then the University has to spend in the long-term a high cost to rehabilitate or replace its buildings. However, because of the neglect, buildings and equipment need to be urgently rehabilitated and additional buildings and equipment have to be provided. In particular, the Central Library and the Faculty libraries, the science laboratories and language laboratories need upgrading. The libraries must be provided with a higher standard of professional and semi-professional manpower and their journal and academic book collections must be replenished. In addition multiple copies of basic textbooks which are essential recommended reading should be acquired by the libraries. Multiple copies of textbooks could help to do away with book subsidies as well as encourage students to use the library facilities more frequently.

77. The Faculty of Science needs more laboratory space and equipment with consumables and materials needed for equipment maintenance and repair, while the Language Center too needs more space and language laboratories. Adequate student health services, cafeteria and sports facilities have to be urgently provided. It is recommended that the University review its support services and physical and material facilities and their utilization. A proper utilization of support services and physical and material facilities can minimize output of expenditure per student as well as better accommodate the student flow. In particular, support services can improve both the participation and retention rates of economically disadvantaged students.

(3) Equity

Increase Female Participation

78. Medium and long-term strategies should be devised to attract, encourage and retain female students and correct the big gender gap that exists now. In particular, efforts should be made to increase the participation rates of female students at all levels. Positive measures should be taken to increase their access and retention in post-primary education in both urban and rural areas as well as people of different income groups in order to increase the pool of secondary school graduates. This could be done by continuously sensitizing parents and society in general of the benefits of female education and thus gradually change their deep-rooted social custom of women's social and economic position in society and the family. In addition, a scholarship policy targeted specifically to encourage female students from rural and lower socioeconomic background should be instituted. Particular emphasis should be made to establish post-graduate training at the masters and PhD levels to train women locally, in order to narrow the gap between male and female faculty.

(4) Resources

Diversify Funding Sources

79. The University of Sana'a is overly dependent on the Government and donor assistance as the primary provider of financial resources. There is an urgent need to evaluate the long and short-term recurrent and capital cost of the University and its implications in terms of domestic and donor resources. This evaluation should also include unit cost per student and unit cost per graduate of the different Faculties (subject area) and the University as a whole and cost of user services, grants to students and other subsidies.

80. However, decreasing donor assistance, accompanied by financial constraints of the country and escalating budgetary demands of the University, warrant additional sources of financing. Therefore, there is an urgent need to decide on the merits of alternative financing approaches. Fees are low and many students receive varying amounts of subsidy to help them in their subsistence cost. Increase in student fees (the principle of making those who can afford to share the cost burden), other user charges and/or ex post cost recovery from graduates should be considered. It is only through these diverse strategies of resource support that the University can raise funds which can help to close the gap between resources and costs and thus maintain existing equipment and replenish the increasingly expensive ones. Greater financial independence will strengthen the University's autonomy and thus encourage greater initiative and innovation. However, if students are required to pay a substantial share of the cost of their education, a large number of the talented but poor students might be excluded from benefiting from a higher education because of their inability to pay. Therefore, financial support should be targeted with the aim of promoting the enrollment of the talented-but-poor to benefit from a higher education.

VII. Conclusion

81. The unprecedented burgeoning of student enrollment into the University of Sana'a is a clear departure from the initial Government policy to rationalize student admission by linking the University output to the absorptive capacity of the labor market. It has created problems of overcrowded classes, insufficient staff resources, and overstretched amenities, deterioration in physical plant and equipment and inadequate provision of educational materials and equipment and absorption of the output. All of this threatens a major decline in the quality and size of output in several degree programs. The Government should immediately take appropriate steps to develop a medium and long-term policy and strategy for its higher education investment which takes into consideration the country's medium and long-term needs, resource constraints and the growing social aspirations of the people.

82. Yemen's higher education has reached a stage that necessitates some reflection on the course of its development over the next decade and possibly beyond. This will help the country to initiate medium and long-term policies and strategies that will help to make higher education a more efficient and effective investment and consistent with the needs and resources of the country.

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Annex 1

YAR - Tentative Policy Matrix

Policy Instruments	Regulatory & Structural Policies	Selection Policies	Input Enhancement Policies	Governance & Management Policies	Financial Policies
Policy Goals					
External Efficiency	• Diversify programs • Abolish guaranteed employment	• Limit access	• Target science/ engineering faculties	• Define clear goals for higher ed.	• Target research funding • Target scholarships
Internal Efficiency	• Limit repetition	• Merit-based selection	• Implement staff development program. • Selective improvement of facilities. • Library development	• Decentralize operational responsibility.	• Establish performance based resource allocation criteria.
Equity	• Establish regional programs.	• Define quotas			• Provide scholarship to disadvantage groups.
Resources	• Offer more shorter part-time courses.		• Use instructional technology.	• Promote consultation and contract research.	• Charge fees. • Target external assistance to priority areas.

_____ First priorities (Phase 1).

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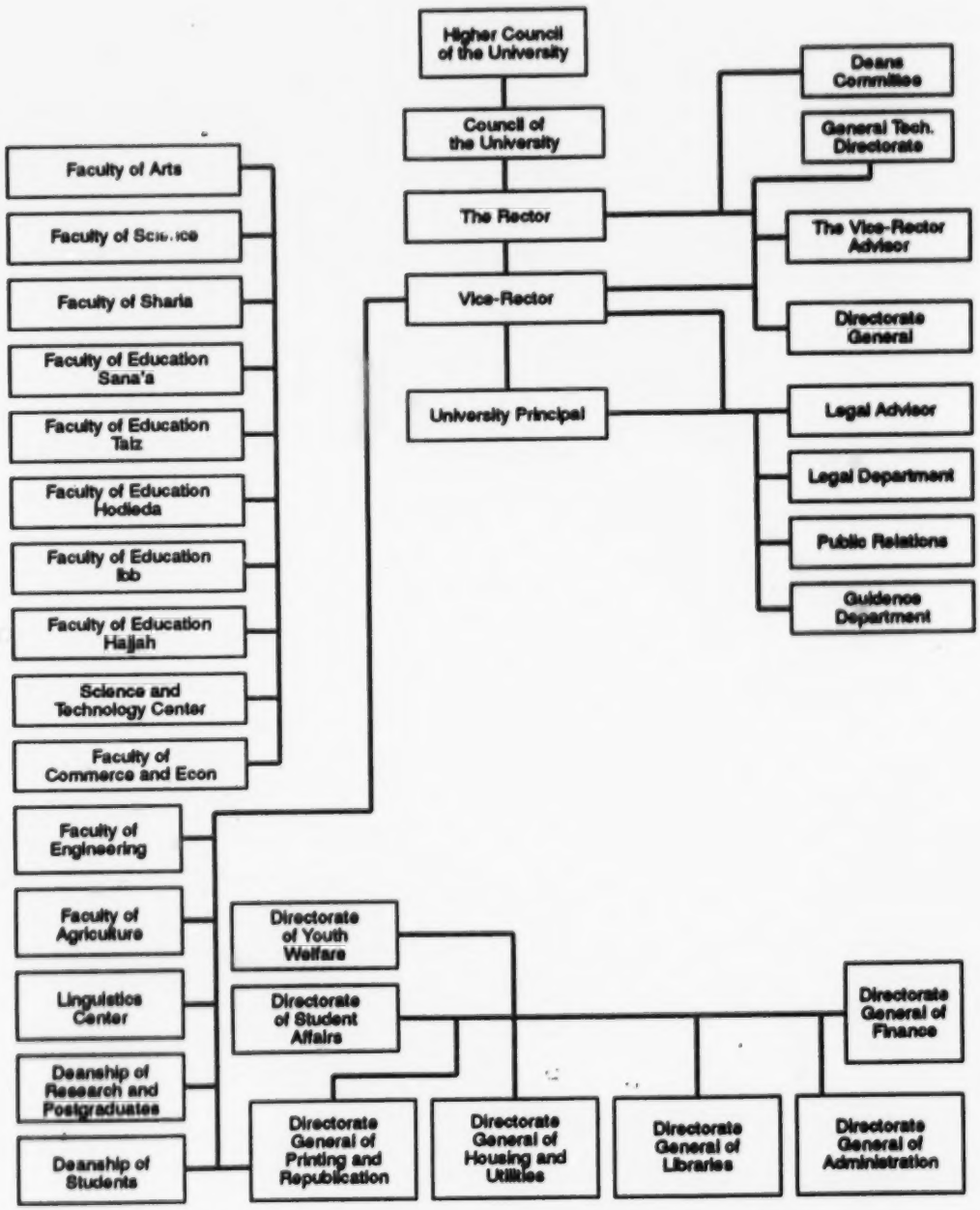
Annex 2

THE ORGANIZATIONAL STRUCTURE OF THE UNIVERSITY OF SANA'A



Source: University of Sana'a

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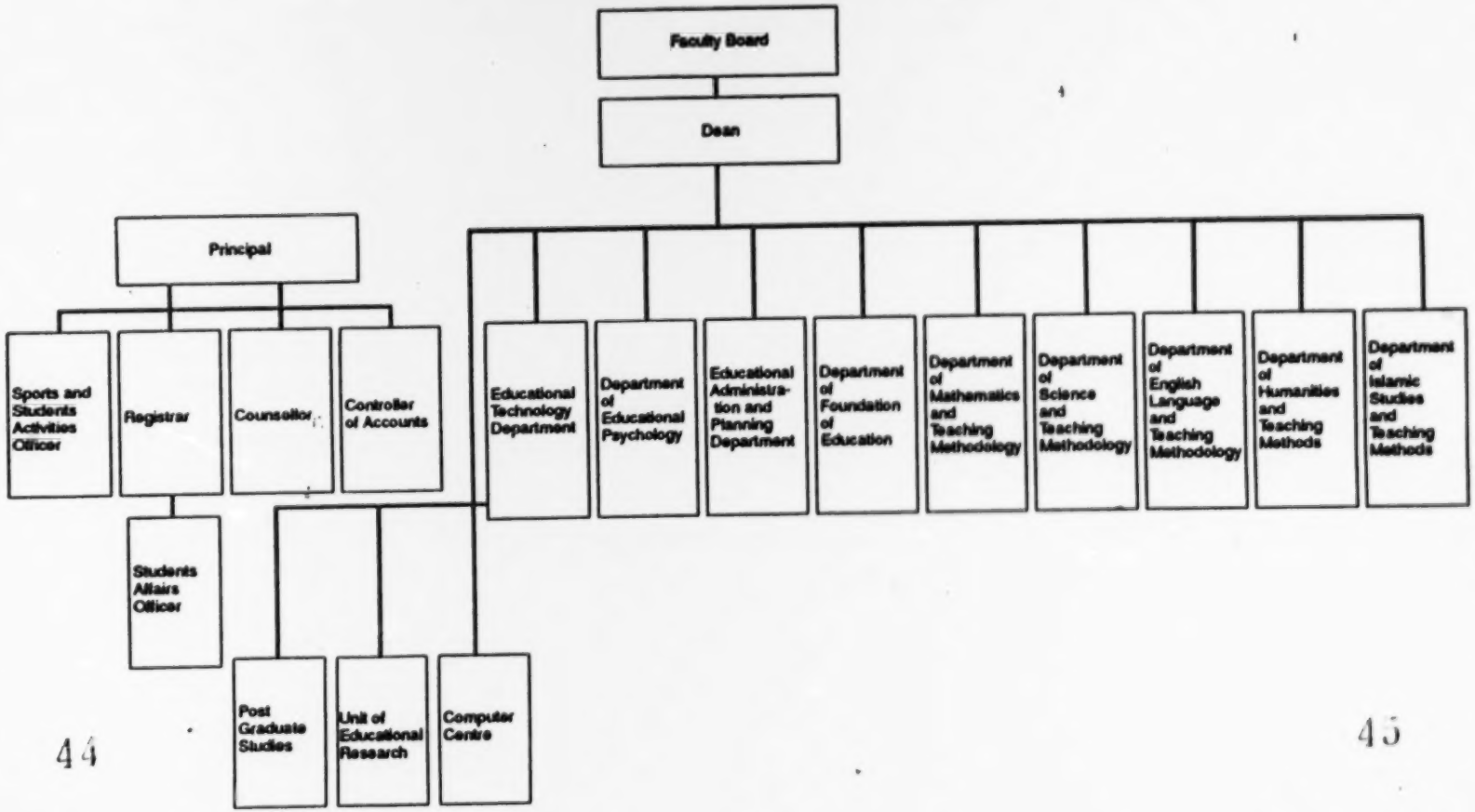
Annex 3

The Structural Organization of the Faculty of Education at the University of Sana'a



Source University of Sana'a

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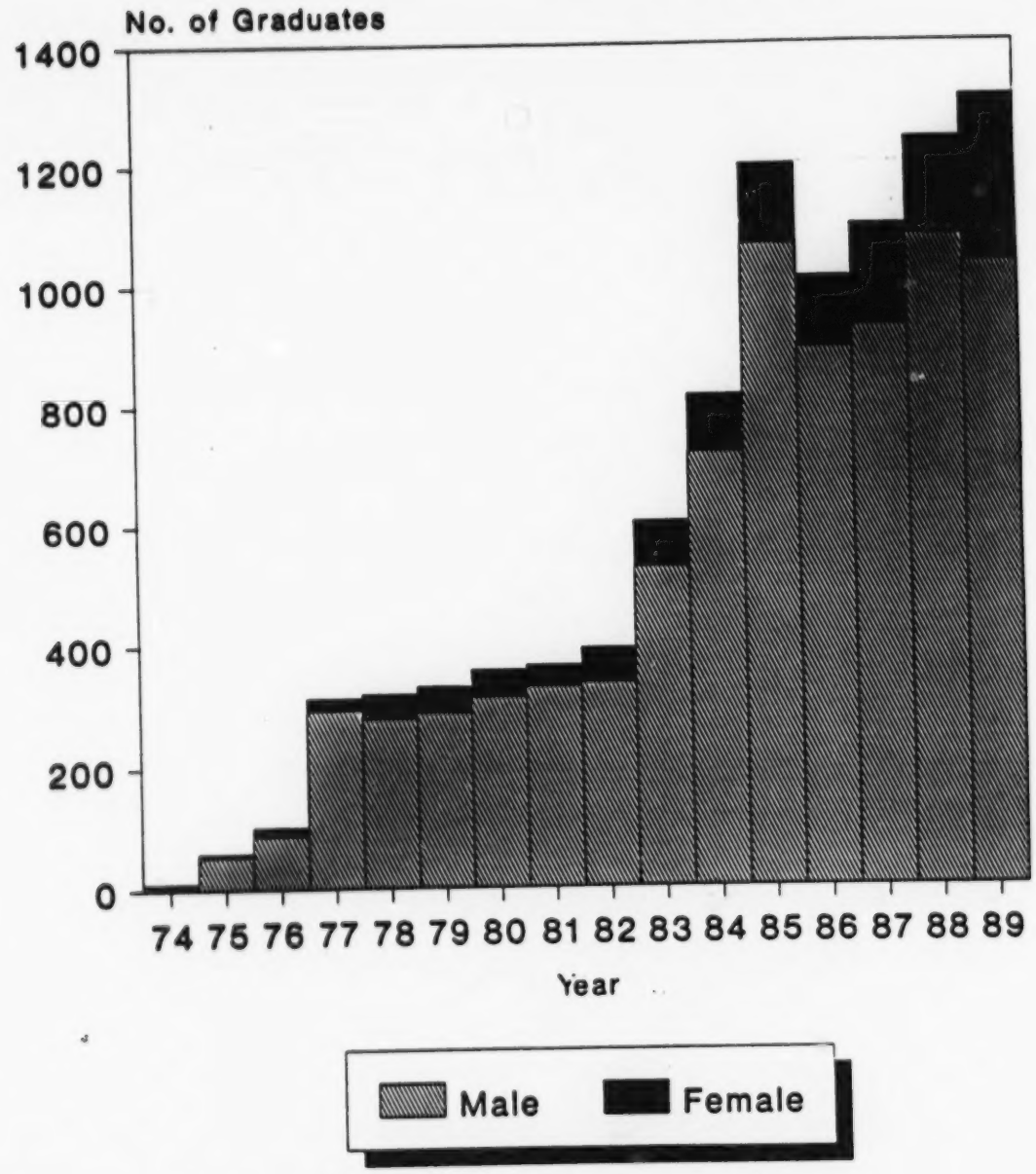
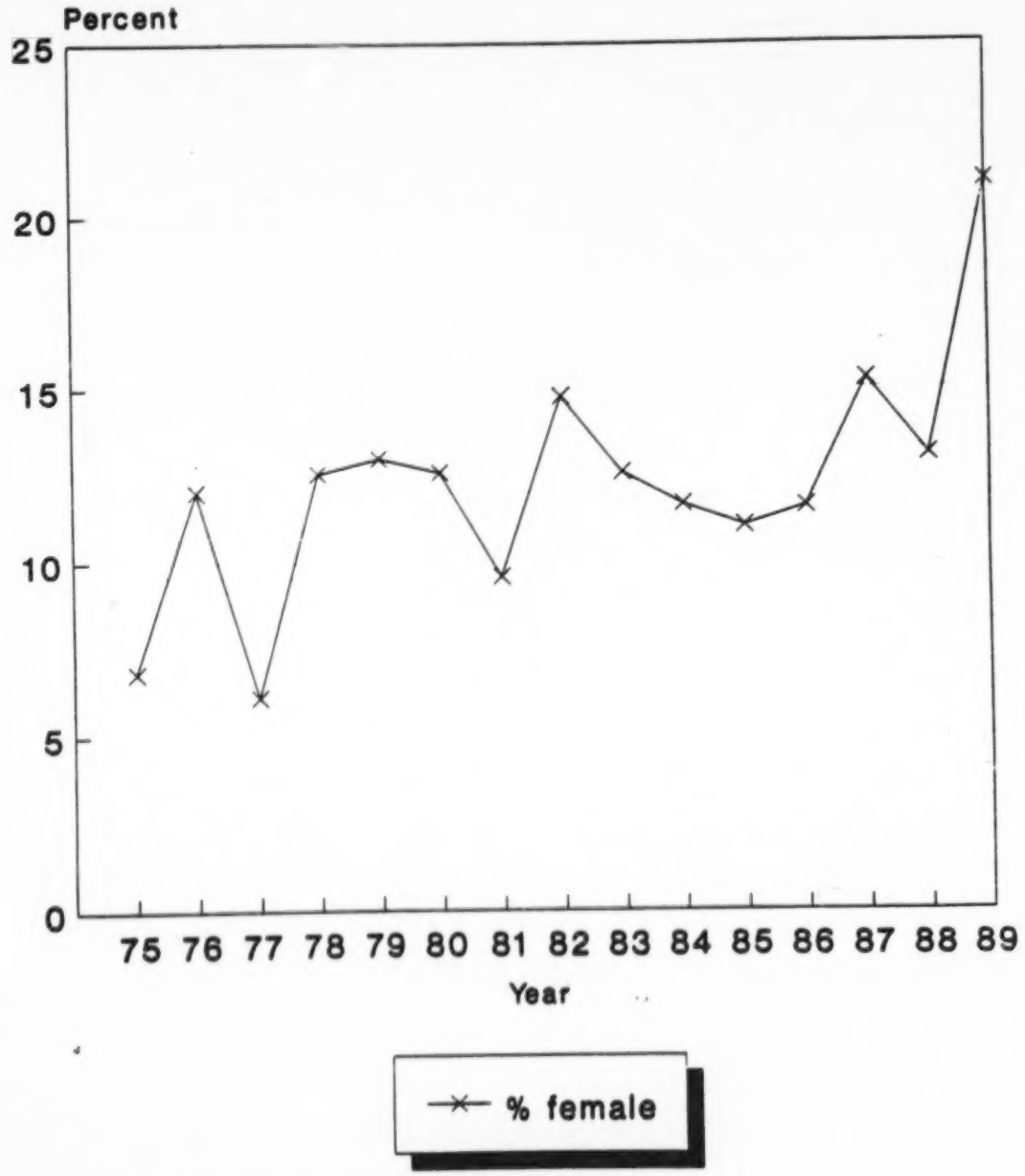
APPENDIX

Graph I
Total Graduate Output from 1974-1989
Male-Female Composition



Source: University of Sana'a

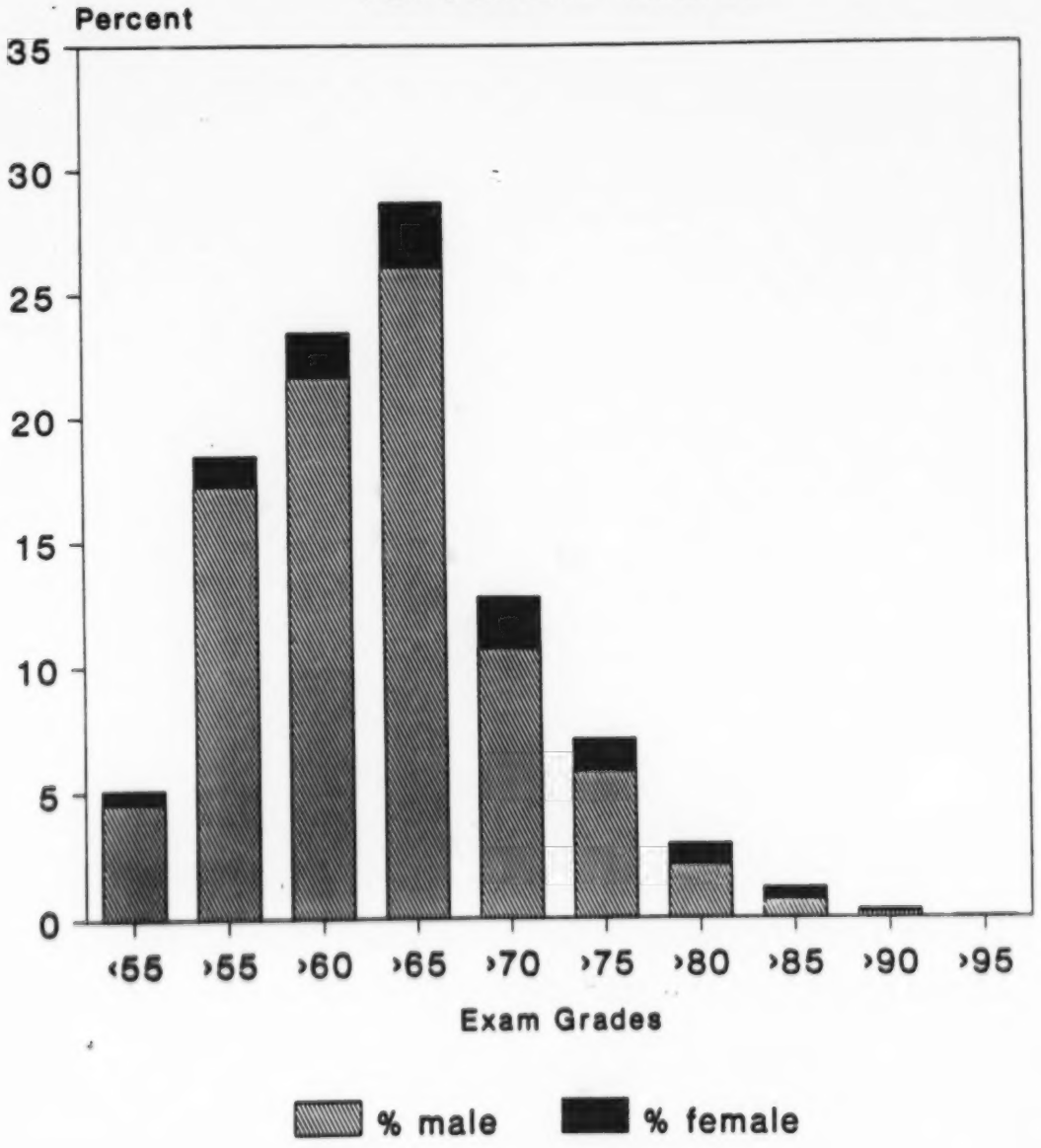
Graph II
Female Composition of Student Output



Source: University of Sana'a

Graph III
Student Admissions to Sana'a University
By Secondary School Graduation Grades

Fall Semester 1989/90



Source: University of Sana'a

Table 1

The Number of Students at Sana'a University

1988/89

Faculty	YEMENI Male	YEMENI Female	YEMENI Total	NON_YEMENI M	NON_YEMENI F	NON_YEMENI T	TOTAL M	TOTAL F	TOTAL T	% Female in Faculty	% Female of Total Students
Arts	740	639	1379	135	65	200	875	704	1579	44.6	3.0
Law	6897	118	7015	56	20	76	6953	138	7091	1.9	0.6
Science	521	193	714	47	19	66	568	212	780	27.2	0.9
Commerce	5254	523	5777	113	41	154	5367	564	5931	9.5	2.4
Medicine	377	291	668	32	34	66	409	325	734	44.3	1.4
Engineering	895	84	979	80	14	94	975	98	1073	9.1	0.4
Agriculture	500	21	521	6	3	9	506	24	530	4.5	0.1
Education	4371	1308	5679	20	30	50	4391	1338	5729	23.4	5.7 *
Sana'a	2333	593	2926	14	22	36	2347	615	2962	20.8	
Taiz	1308	498	1806	1	5	6	1309	503	1812	27.8	
Hodieda	614	165	779	5	3	8	619	168	787	21.3	
Ibb	116	52	168				116	52	168	31.0	
TOTAL	19555	3177	22732	489	226	715	20044	3403	23447	14.5	14.5

Source: University of Sana'a

* education total

Table 2

College of Education

Student Enrollments, 1989-90

Faculty	YEMENI Male	YEMENI Female	YEMENI Total	NON-YEMENI M	NON-YEMENI F	NON-YEMENI T	TOTAL M	TOTAL F	TOTAL T
SANA'A									
Islamic Studies	771	189	960	7	7	14	778	196	974
Arabic	379	38	417	7	9	16	386	47	433
English	181	46	227	2	3	5	183	49	232
Geography	550	159	709	1	1	2	551	160	711
History	648	73	721	1	0	1	649	73	722
Philos./Sociol.	168	72	240	0	0	0	168	72	240
Math/Physics	428	38	466	4	3	7	432	41	473
Physics/Math	135	12	147	0	4	4	135	16	151
Chemistry/Physic	322	27	349	2	1	3	324	28	352
Biology	786	174	960	6	4	10	792	178	970
SANA'A Total	4368	828	5196	30	32	62	4398	860	5258
TAIZ									
Islamic Studies	949	302	1251	0	2	2	949	304	1253
Arabic	587	114	701	0	3	3	587	117	704
English	95	65	160	0	2	2	95	67	162
Math/Physics	403	34	437	1	2	3	404	36	440
Physics/Math	92	3	95	0	0	0	92	3	95
Chemistry/Physic	345	65	410	0	0	0	345	65	410
Biology	477	175	652	0	1	1	477	176	653
TAIZ Total	2948	758	3706	1	10	11	2949	768	3717
HODEIDAH									
Islamic Studies	430	155	585	2	4	6	432	159	591
Arabic	330	27	357	1	1	2	331	28	359
English	212	61	273	1	0	1	213	61	274
Math/Physics	197	27	224	0	1	1	197	28	225
Physics/Math	80	5	85	0	0	0	80	5	85
Chemistry/Physic	86	26	112	0	0	0	86	26	112
Biology	62	0	62	1	0	1	63	0	63
HODEIDAH Total	1397	301	1698	5	6	11	1402	307	1709
IBB									
Islamic Studies	291	77	368	0	0	0	291	77	368
Arabic Studies	143	20	163	0	4	4	143	24	167
English	56	10	66	0	1	1	56	11	67
IBB Total	490	107	597	0	5	5	490	112	602
HAJJAH									
Islamic Studies	84	12	96	0	0	0	84	12	96
Arabic	46	8	54	0	0	0	46	8	54
HAJJAH Total	130	20	150	0	0	0	130	20	150
TOTAL	9,333	2,014	11,347	36	53	89	9,369	2,067	11,436

Table 3

Faculty position in FOEs, July 1990

FOE	Profs		Asst Profs		Lect		Instr		Teach Asst		All		
	Y	NY	Y	NY	Y	NY	Y	NY	Y	NY	Y	NY	Total
Sana'a	-	2	2	7	20	7	3	1	17	-	42	17	59
Ta'z	-	8	-	8	2	14	3	-	14	-	19	30	49
Hudeida	-	5	-	9	2	8	-	1	14	-	16	23	39
Ibb	-	-	-	-	1	6	-	-	1	2	2	8	10
Hajja	-	-	-	1	1	3	-	1	-	-	1	5	6
Total	-	15	2	25	26	38	6	3	46	2	80	83	163

Source: University of Sana'a

Y- Yemeni; NY- Non Yemeni

Table 4

Members of FOEs on fellowships abroad

Program	Egypt	COUNTRY			
		USA	UK	Jordan	Total
Master's	5	4	8	5	22
Ph D	7	8	1	-	16
Total	12	12	9	5	38

Source: University of Sana'a

Table 5

University of Sana'a

NUMBER OF ACADEMIC STAFF 1988-89

Faculty	YEMENI						NON-YEMENI						TOTAL
	Prof.	Asst. Prof.	Teacher	Asst. Teacher	Demon-strator	TOTAL	Prof.	Asst. Prof.	Teacher	Asst. Teacher	Demon-strator	TOTAL	
Law		2	11	5	2	20	1	4	3			8	28
Arts	1	2	27	4	18	52	12	13	10	2	2	39	91
Science		3	12		25	40	22	15	3	10	12	62	102
Commerce & Econ		3	13	5	18	39		6	8			14	53
Medicine	1	6	11	4	8	30	9	6	1		1	17	47
Engineering			3	6	11	20	5	4	1		1	11	31
Agriculture		2	5	2	7	16	2			1	2	5	21
Language Centre					6	6	1	3		12	4	20	26
Education		1	22	4	23	50	3	6	10	1	1	21	71
Sana'a		1	17	2	16	36		3	3			6	42
Taiz			2	2	6	10	3	3	6		1	13	23
Hodeidah			2		1	3				1		1	4
Ibb			1			1			1			1	2
TOTAL	2	19	104	30	118	273	55	57	36	26	23	197	470

Source: University of Sana'a

Table 6

Sana'a University
STAFF ON OVERSEAS HIGHER DEGREE TRAINING
as of October 1988

Country	Law		Arts		Education		Science		Commerce and Econ		Engineering		Medicine		Agriculture		Languages		DEGREE TOTALS		
	MA	Phd	MA	Phd	MA	Phd	MA	Phd	MA	Phd	MA	Phd	MA	Phd	MA	Phd	MA	Phd	MA	Phd	MA-Phd
USA			2	4		11	5	6	9	6	2	5	2	2	4	4		1	24	39	63
UK			1	1	4	1	4	1		1	5	5	4	3					18	12	30
Egypt	14	24	13	11	6	5			12	12	2	1	2	1	1	5			50	59	109
France	1						1		1	1	4		2		1				10	1	11
W.Germany			1	2															1	2	3
E.Germany			1																1	0	1
Canada														1					0	1	1
Pakistan		1																	0	1	1
Saudi Arabia									1			2							2	1	3
Poland			1																1	0	1
TOTAL	15	25	19	18	10	17	10	8	22	20	15	11	10	7	6	9	0	1	107	116	223

Source : University of Sana'a

Table 7

University of Sana'a

POSTGRADUATE PROFILE

According to Their Major, Sex, and Nationality 1988/89

Faculty	Major	YEMENI									NON-YEMENI									TOTAL		
		Diploma			Masters			Doctorate			Diploma			Masters			Doctorate					
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
ARTS	Arabic				11	3	14							4		4				15	3	18
	English				1	4	5													2	4	6
	Archeology				2		2													2	0	2
	Sociology					1	1				1		1							1	1	2
	Geogr.				2		2													2	0	2
	History				1		1													1	0	1
	Isl. Study.				1		1													1	0	1
SCIENCE	Chemstry					3	3							3	1	4				3	4	7
	Geology				9		9													9	0	9
	Math				6		6							1		1				7	0	7
	Biology					1	1							1		1				1	1	2
COMMERCE	Accounting	40	1	41							4	1	5							44	2	46
	Develop. Planning	49	2	51																49	2	51
	Intn'l Pol.	31	2	33							9		9							40	2	42
SHARIA'A LAW	Islamic Sharia'a	18		18							1		1							19	0	19
	Special Law	20		20							1		1							21	0	21
	TOTAL	158	5	163	33	12	45	1	0	1	15	1	16	10	1	11	0	0	0	217	19	236

Source : University of Sana'a

Table 8
University of Sana'a
THE OUTPUT FROM DIFFERENT KINDS OF EDUCATION
(1979/80-1988/89)

Type of Education	79/80	80/81	81/82	82/83	83/84	84/85	85/86	86/87	87/88	88/89
Elementary	10667	16201	19854	26236	32940	47344	69794	85364	80088	89621
Preparatory	3863	5726	6093	7372	8551	10976	19143	26377	28245	38648
*Secondary	2181	3170	2367	3337	2707	4948	5827	7909	8086	13211
*Commercial Secondary	69	161	117	109	130	190	163	228	211	204
*Agricultural and Veterinary			47	28	64	57	61	40	65	157
*Industrial/Technical	100	59	59	179	146	177	171	167	140	252
Professional		92	158	124	90	176	135	293	287	253
*Teachers' Institutes	304	645	563	450	353	47	925	1533	1875	1787
Elementary Religious	387	797	1251	2279	2906	4116	5468	6685	7050	9058
Preparatory Religious	175	237	379		519	814	1016	2304	2846	4107
*Secondary Religious	74	121	88	115	79	172	172	347	414	794
*Teachers' Religious					11	168	149	272	224	707
Faculty of Arabic and Islamic Studies				17	24	20	10	21	22	
Secondary (Telecommunication)				17	13					
TOTAL	17820	27209	30976	40263	48533	69205	103034	131540	129553	158799

* Students from these streams are eligible for admissions to undergraduate courses at the University of Sana'a

Source: University of Sana'a

Table 9

University of Sana'a

Graduate Output From 1973/74 to 1988/89

	73/74		74/75		75/76		76/77		77/78		78/79		79/80		80/81		81/82		82/83		83/84		84/85		85/86		86/87		87/88		88/89		
Faculty	Male	Female	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	Total
Arts	7	2	32	4	47	11	35	1	25	18	33	21	23	12	37	11	48	22	59	27	74	30	99	45	67	30	120	45	87	27	109	73	1281
Law			20		38		55		32		53	2	93	2	83	8	73	3	153	4	298	7	541	8	426	16	348	6	430	10	203	4	2916
Science			3		3	1			11	1	11	1	9	3	12	4	11	3	31	10	30	16	27	21	62	16	38	21	15	6	23	6	395
Education							139	15	128	13	108	12	82	15	86	9	76	14	100	23	155	25	94	28	174	26	193	55	182	56	349	126	2283
Econ./comm							64	3	83	8	83	7	106	13	112	3	127	16	185	12	162	17	294	28	157	24	224	34	348	52	304	44	2510
Medicine																							9	2	6	5	5	6	3	10	2	20	68
Engineering																													8		19		27
Agriculture																													4	1	25	2	32
TOTAL	7	2	55	4	88	12	293	19	279	40	288	43	313	45	330	35	335	58	528	76	719	95	1064	132	892	117	928	167	1077	162	1034	275	9512
Cumul. Total		9		59		100		312		319		331		358		365		393		604		814		1196		1009		1095		1239		1309	9512

Source: University of Sana'a

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